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RooWorkspace serialization: RooFit goes JSON

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The statistical model is an extremely information-dense and comprehensive representation of a physics measurement, which is why efforts to preserve and publish it have been pursued for years. One of the main challenges is to find a format in which to store a statistical model that is useful for people external to the experimental community and not bound to a specific software (such as RooFit or RooFit-derived customized pdf classes), while at the same time being general enough to cover all use-cases. With the advent of pyhf and its JSON specification for statistical models, the community has seen a surge in publishing full models, which has been well-received by theorists. While the reduced use case of HistFactory lends itself to a compact and declarative representation, the extension of such a format for a general, open-world scenario is challenging, but of critical importance. The RooJSONFactoryWSTool is a new addition to RooFit that allows the export and import of generic workspaces to JSON or YAML. The path chosen to address the challenge is to provide a fully extensible interface to register new types of functions and pdfs, allowing to import and export not only classes shipped with ROOT, but any implementation residing in a workspace. The accompanying documentation sets out a draft for a “High Energy Physics Statistics Serialization Standard” (HS3), which will hopefully be adopted and extended by the community and increase traction for the publishing of statistical models. The implementation is still in experimental stage, but available with ROOT 6.26/00.

Summary

Primary author: BURGARD, Carsten

Presenter: BURGARD, Carsten

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